

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Michael J. Heller et al.

Serial No.: 09/128,718

Filed: August 3, 1998

For: Methods and Apparatus for Electronic  
Synthesis of Molecular Structures

)  
) Group Art Unit: 1631

)  
) Examiner: Marschel

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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
Washington, D.C. 20231

Sir:

The accompanying Form PTO 1449 provides a listing of documents which may be relevant to the subject application. These references have been cited in parent and related applications. Therefore, Applicant will provide the Examiner with copies of these references upon request. It is requested that the Examiner fully consider the art cited in the accompanying Form PTO 1449, initial the left-most column of the form adjacent each cited reference, and return a copy for Applicants' records. It is further requested that the art be cited on the cover of any patent issuing from the subject application.

This statement should not be construed as a representation that more material information does not exist or that an exhaustive search of the relevant art has been made. Nor does this statement constitute an admission by Applicants or Applicants' agent that the information provided herein is necessarily prior art to Applicants' invention. Moreover, Applicants reserve the right to establish the

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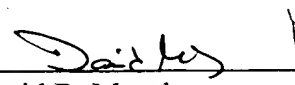
patentability of the claimed invention over any of the listed documents should they be applied there-  
against as references.

Respectfully submitted,

LYON & LYON LLP

Dated: November 1, 2001

By: \_\_\_\_\_

  
David B. Murphy  
Reg. No. 31,125

DBM/dnd  
633 West Fifth Street, Suite 4700  
Los Angeles, California 90071-2066  
(949) 567-2300 or (213) 489-1600

FORM PTO-1449

LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S  
INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.  
236/092SERIAL NO.  
09/128,71APPLICANT:  
Michael J. Heller et al.FILING DATE:  
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1631

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBC LASS	FILING DATE
AA	3,950,738	4/76	Hayashi et al.	365	185	7/74
AB	3,995,190	11/76	Salgo	313	391	12/75
AB1	4,225,410	9/80	Pace	204	195	12/78
AC	4,283,773	8/81	Daughton et al.	364	132	4/79
AD	4,563,419	1/86	Ranki et al.	435	6	12/83
AE	4,580,895	4/86	Patel	356	39	10/83
AF	4,584,075	4/86	Goldstein et al.	204	522	11/84
AG	4,594,135	6/86	Goldstein	204	551	2/85
AG1	4,661,451	4/87	Hansen	435	174	2/84
AH	4,751,177	6/88	Stabinsky	435	6	6/85
AI	4,787,963	11/88	MacConnell	204	450	5/87
AJ	4,807,161	2/89	Comfort et al.	364	550	12/87
AK	4,816,418	3/89	Mack et al.	436	518	7/85
AL	4,822,566	4/89	Newman	422	82	5/87
AM	4,828,979	5/89	Klevan et al.	435	6	11/84
AN	4,908,112	3/90	Pace	210	198	6/88
AO	5,063,081	11/91	Cozzette et al.	435	4	8/90
AP	5,074,977	12/91	Cheung et al.	205	775	10/90
AQ	5,075,077	12/91	Durley, III et al.	422	56	8/88
AR	5,096,669	3/92	Lauks et al.	422	61	9/88
AS	5,096,807	3/92	Leaback	435	6	12/89
AT	5,125,748	6/92	Bjornson et al.	356	414	5/91
AU	5,126,022	6/92	Soane et al.	204	458	2/90
AV	5,143,854	9/92	Pirung et al.	436	518	3/90
AW	5,164,319	11/92	Hafeman et al.	435	287	11/89
AX	5,166,063	11/92	Johnson	435	173	6/90
AY	5,200,051	4/93	Cozzette et al.	204	403	11/89
AZ	5,202,231	4/93	Drmanac et al.	435	6	6/91
BA	5,219,726	6/93	Evans	435	6	6/89
BB	5,227,265	7/93	DeBoer et al.	430	41	11/90

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## FORM PTO-1449

ATTY. DOCKET NO.  
236/092SERIAL NO.  
09/128,728LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S  
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BC	5,234,566	8/93	Osman et al.	204	403	4/91
BD	5,242,797	9/93	Hirschfeld	435	6	1/92
BE	5,304,487	4/94	Wilding et al.	435	29	5/92
BF	5,312,527	5/94	Mikkelsen et al.	205	777	10/92
BG	5,433,819	7/95	McMeen	216	20	5/93
BH	5,434,049	7/95	Okano et al.	435	6	2/93
BI	5,436,129	7/95	Stapleton	435	6	10/93
BJ	5,445,525	8/95	Broadbent et al.	439	64	5/94
BK	5,464,517	11/95	Hjerten et al.	204	183	1/95
BL	5,468,646	11/95	Mattingly	436	501	1/95
BM	5,516,698	5/96	Begg et al.	436	89	4/92
BN	5,527,670	6/96	Stanley	435	6	8/94
BO	5,593,838	1/97	Zanzucci et al.	435	6	5/95
BP	5,605,662	2/97	Heller et al.	422	68	11/93
BQ	5,632,957	5/97	Heller et al.	422	68	9/94
BR	5,653,939	8/97	Hollis et al.	422	50	8/95
BS	5,660,701	8/97	Grushka et al.	204	451	2/96
BT	5,681,751	10/97	Begg et al.	436	89	5/95
BU	5,750,015	5/98	Soane et al.	204	454	3/96
BV	5,849,486	12/98	Heller et al.	435	6	8/96
BW	6,013,166	1/00	Heller	204	469	4/94
BX	6,017,696	1/00	Heller et al.	435	6	7/94

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBC CLASS	TRANSLATION YES NO
BY	0228075	7/87	EP (Dattagupta et al.)			
BZ	2247889	3/92	GB (Stanley)			
CA	WO95/07363	3/95	PCT (Konrad)			
CB	WO90/01564	2/90	PCT (Adams et al.)			
CC	WO89/01159	2/89	PCT (Cornell et al.)			

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CD	WO93/22678	11/93	PCT (Hollis)				
CE	WO86/03782	7/86	PCT (Malcolm et al.)				
CF	WO89/10977	11/89	PCT (Southern)				
CG	WO88/08528	11/88	PCT (Stanbro et al.)				
CH	WO92/04470	3/92	PCT (Stanley)				
CI	WO98/51819	11/98	PCT (Heller et al.)				
CJ	WO96/01836	1/96	PCT (Heller et al.)				
CK	WO98/01758	1/98	PCT (Kovacs)				
CL	2156074	10/85	UK (Palva et al.)				
CM	57087	87	Yugoslavia (Drmanac)				

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

CN	Abrams et al. "Comprehensive Detection of Single Base Changes In Human Genomic DNA Using Denaturing Gradient Gel Electrophoresis & a GC Clamp". <i>Genomics</i> , 7, 1990, 463-475
CO	Anand and Southern "Pulsed Field Gel Electrophoresis," <u>Gel Electrophoresis of Nucleic Acids - A Practical Approach</u> , 2d. Ed., D. Rickwood and B.D. Hames (New York: IRL Press 1990), pp 101-123
CP	Anderson and Young, "Quantitative Filter Hybridization," <u>Nucleic Acid Hybridization - A Practical Approach</u> , Eds. B.D. Hames and S.J. Higgins (Washington, D.C.: IRL Press 1985) pp 73-111
CQ	Bains, "Setting a Sequence to Sequence a Sequence," <i>Bio/Technology</i> , 10:757-758 (1992)
CR	Barinaga, "Will 'DNA Chip' Speed Genome Initiative?", <i>Science</i> , 253:1489 (1991)
CS	Beattie et al., "Genosensor Technology," <u>The 1992 San Diego Conference: Genetic Recognition</u> , pp 1-5 (Nov, 1992)
CT	Beltz et al., "Isolation of Multigene Families and Determination of Homologies by Filter Hybridization Methods," <i>Methods in Enzymology</i> , 100:266-285 (1983)
CU	Brown et al. "Electrochemically Induced Adsorption of Radio-Labelled DNA on Gold and HOPG Substrates for STM Investigations". <i>Ultramicroscopy</i> , 38, 1991, 253-264
CV	Conner et al., "Detection of Sick Cell $\beta^3$ -Globin Allele by Hybridization With Synthetic Oligonucleotides," <i>Proc. Natl. Acad. Sci. USA</i> , 80:278-282 (1983)

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## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

CW	Drmanac et al., "Sequencing of Megabase Plus DNA by Hybridization: Theory of the Method," <i>Genomics</i> , 4:114-128 (1989)
CX	Drmanac et al., "DNA Sequence Determination by Hybridization: A Strategy for Efficient Large-Scale Sequencing," <i>Science</i> , 260: 1649-1652 (1993)
CY	Eggers et al. "Biochip Technology Development", BioChip Technology Development, Lincoln Laboratory Technical Report 901, Nov. 9, 1990
CZ	Fiaccabrino et al., "Array of Individually Addressable Microelectrodes", <i>Sensors and Actuators B</i> , 18-19 (1994) 675-677
DA	Fodor et al., "Multiplexed Biochemical Assays With Biological Chips," <i>Nature</i> , 364:555-556 (1993)
DB	Fodor et al., "Light-Directed, Spatially Addressable Parallel Chemical Synthesis," <i>Science</i> , 251:767-773 (1992)
DC	Horejsi, "Some Theoretical Aspects of Affinity Electrophoresis," <i>Journal of Chromatography</i> , 178:1-13 (1979)
DD	Horejsi et al., "Determination of Dissociation Constants of Lectin Sugar Complexes by Means of Affinity Electrophoresis, <i>Biochimica et Biophysica Acta</i> , 499:200-300 (1977)
DE	Kakerow et al., "A Monolithic Sensor Array of Individually Addressable Microelectrodes", <i>Sensors and Actuators A</i> , 43 (1994) 296-301
DF	Mathews, Kricka. "Analytical Strategies For The Use Of DNA Probes". <i>Analytical Biochemistry</i> , 169, 1988, 1-25
DG	Palecek. "New Trends in Electrochemical Analysis of Nucleic Acids". <i>Bioelectrochemistry and Bioenergetics</i> , 20, 1988, 179-194
DH	Ranki et al., "Sandwich Hybridization as a Convenient Method for the Detection of Nucleic Acids in Crude Samples," <i>Gene</i> , 21:77-85 (1983)
DI	Saiki, "Amplification of Genomic DNA," <i>PCR Protocols: A Guide to Methods and Applications</i> , (Academic Press, Inc. 1990), pp 13-20
DJ	Southern et al., "Analyzing and Comparing Nucleic Acid Sequences by Hybridization to Arrays of Oligonucleotides Evaluation Using Experimental Models," <i>Genomics</i> , 13:1008-1017 (1992)
DK	Strezoska et al., "DNA Sequencing by Hybridization: 100 Bases Read by a Non-Gel-Based Method", <i>Proc. Natl. Acad. Sci. USA</i> , 88:10089-93 (1991)

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	DL	Wallace et al., "Hybridization of Synthetic Oligodexribonucleotides to $\phi$ x 174 DNA: The Effect of Single Base Pair Mismatch," <i>Nucleic Acid Res.</i> , 6:3543-3557 (1979)
	DM	Washizu, "Electrostatic Manipulation of Biological Objects," <i>Journal of Electrostatics</i> , 25:109-123 (1990)
	DN	Washizu and Kurosawa, "Electrostatic Manipulation of DNA in Microfabricated Structures," <i>IEEE Transactions on Industry Applications</i> , 26:1165-1172 (1990)

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